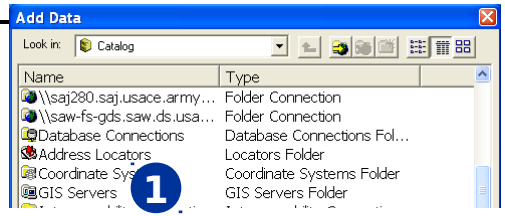
Data Management

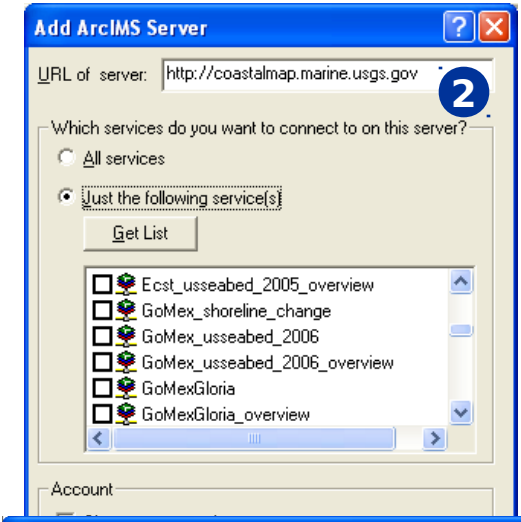
Exercise A	Finding Coastal Data
Exercise B	Creating and Loading Data into the Geodatabase
Exercise C	Using Layer Files to Display and Access Data

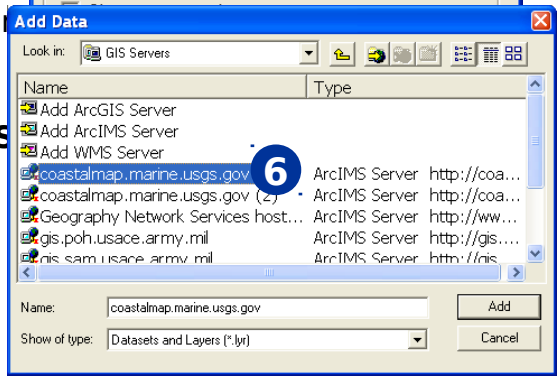
Exercise A: Finding Coastal Data

ArcIMS/Web Mapping (WMS) Services

To access services provided by an ArcGIS, ArcIMS, or Open Geospatial Consortium, Inc (OGC) Web Mapping Service (WMS) server, you make a connection to it in the ArcCatalog GIS Servers folder. To connect to either a server over the Internet, you must provide the Universal Resource Locator (URL) that uniquely identifies the server on the Internet. For ArcGIS Servers, you can also connect over your local network; to connect, you must provide a local area network (LAN) address, such as the name of the computer.







Connecting to an ArcIMS Server

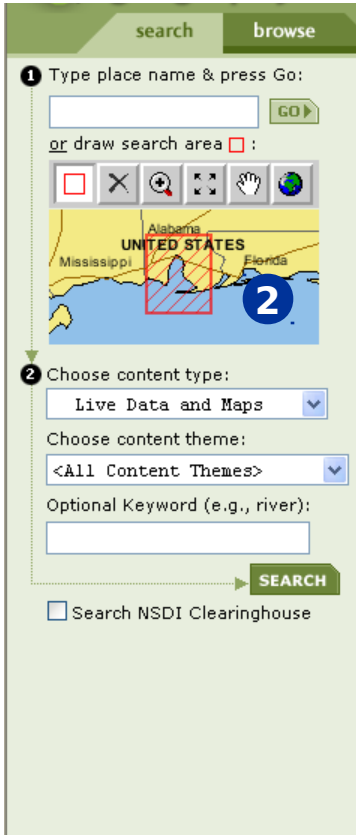
1. Click on the Add Data tool in ArcMap. Browse to the option, double-click on **GIS Servers**, then double-click to select **Add ArcIMS Server**.
2. In the dialog box that appears, type in the URL of the Internet Server to which you want to connect.
   - ☐ Enter **http://coastalmap.marine.usgs.gov**
3. To access particular services on this server, click **Get List**. A list of all services that are available on the server appears.
   - ☐ For this example, Click the "All Services" option to add a connection to all of USGS' coastal related map services.
4. Click OK.
5. To add this data into the view, using the Add Data button, browse to **GIS Servers**
6. Double-click to select **http://coastalmap.marine.usgs.gov.**
7. Select **GoMex_shoreline_change** and click **Add**. This will automatically load the data served on the internet into your mapping display. If prompted, select "OK to All" to load data into your data frame.

Exercise A: Finding Coastal Data

About adding data from the Internet

The Internet is a vast resource for geographic data. The Add Data from Internet option in ArcMap allows you to go directly to any Web site you choose, using a browser to explore **Metadata Explorer** sites. Generally, the data you add to your map is accessed directly from the organization providing the data.

An example of a widely used source is the Geography Network (www.geographynetwork.com). The Geography Network is a global community of data providers committed to making geographic content available to the public. Published from sites around the world, it gives you immediate access to the latest maps, data, and related services over the Internet. Use the Geography Network to search for and explore maps and other geographic content. When you find what you want, you can add it directly to your map in ArcMap.



Adding Internet data from the Geography Network

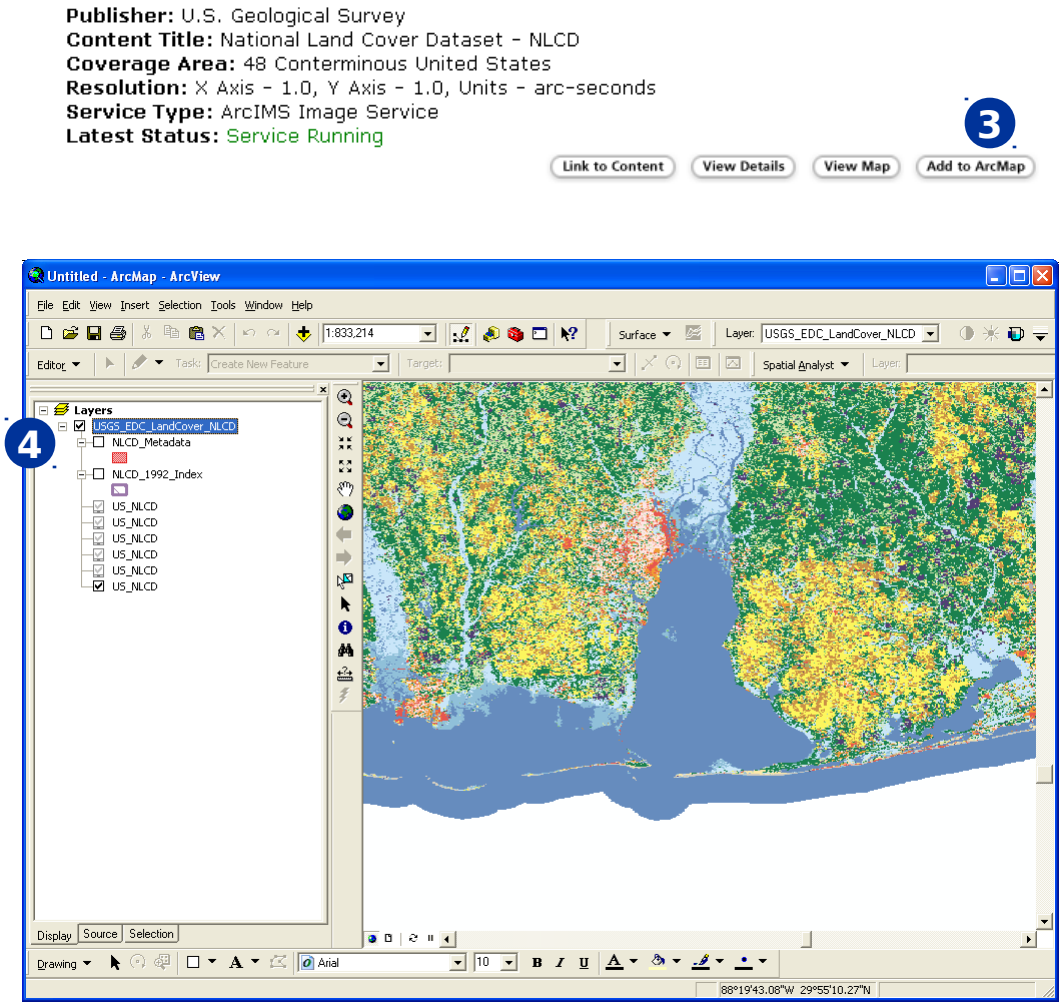
1. Click the File menu, point to **Add Data from Internet**, and click **Geography Network**.
2. The Geography Network Explorer is automatically launched in your Web browser. The Geography Network Explorer lets you search for data by geographic location, data theme, and keyword. You can also click the Browse tab to look through the available data according to who publishes it, and so on.
   - ☐ Zoom into AL, and Draw a Search Area (red box) around the Mobile Bay. Click **Search**.

Exercise A: Finding Coastal Data

3. Click the **Add To ArcMap** button next to the data you want to add to your map. If the button is not available, the data can't be added to ArcMap.
   - ☐ Select the data from **U.S. Geological Survey: NLCD**. Data will automatically been loaded into your data display under the layer group, **USGS_EDC_LandCover_NLCD**.

4. To toggle the available layers, click the **+** sign to expand the group.

5. When finished browsing the data, **remove** the **semmain** and **WestFLshelf** grouped layers. To remove, right-click on the group name, and select **Remove**.

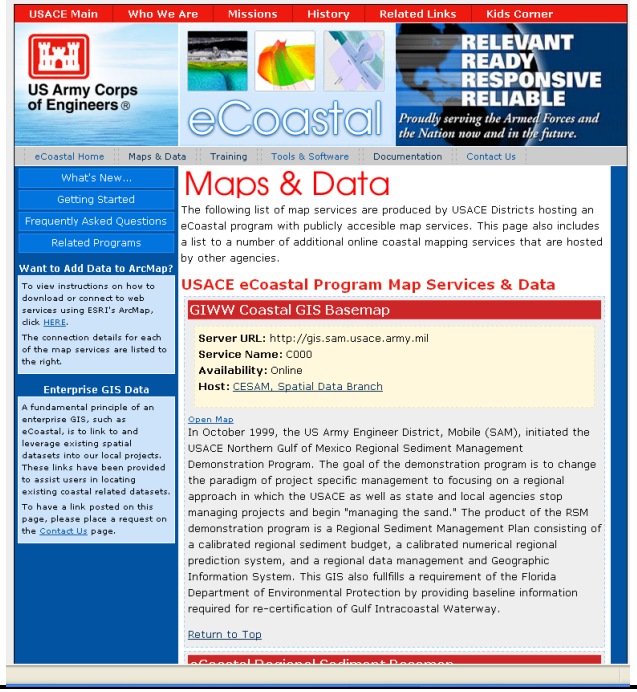


Exercise A: Finding Coastal Data

I added data to my data frame, but the layers do not line up. Why?

- In most cases the problem will be that the data that you are attempting to overlay may be in different projections. When working with spatial data, it is important to know the projection of your data. By establishing a baseline projection, this will ensure the data will overlay properly.
- Projection—A mathematical formula that transforms feature locations from the earth's curved surface to a map's flat surface. Projections can cause distortions in distance, area, shape, and direction; all projections have some distortion. Therefore, the projection type is often placed on the map to help readers determine the accuracy of the measurement information they get from the map.

Under the **Maps & Data** page of the **eCoastal website**, http://eCoastal.usace.army.mil, is a listing of coastal related map services that are available for viewing and downloading in either a web or ArcGIS desktop environment. You can use the skills learned in this lesson to access these datasets.


USACE Main
Who We Are
Missions
History
Related Links
Kids Corner
US Army Corps of Engineers®
eCoastal
RELEVANT
READY
RESPONSIVE
RELIABLE
Proudly serving the Armed Forces and the Nation now and in the future.
eCoastal Home
Maps & Data
Training
Tools & Software
Documentation
Contact Us
What's New...
Getting Started
Frequently Asked Questions
Related Programs
Want to Add Data to ArcMap?
To view instructions on how to download or connect to web services using ESRI's ArcMap, click HERE.
The connection details for each of the map services are listed to the right.
Enterprise GIS Data
A fundamental principle of an enterprise GIS, such as eCoastal, is to link to and leverage existing spatial datasets into our local projects. These links have been provided to assist users in locating existing coastal related datasets.
To have a link posted on this page, please place a request on the Contact Us page.
Maps & Data
The following list of map services are produced by USACE Districts hosting an eCoastal program with publicly accesible map services. This page also includes a list to a number of additional online coastal mapping services that are hosted by other agencies.
USACE eCoastal Program Map Services & Data
GIWW Coastal GIS Basemap
Server URL: http://gis.sam.usace.army.mil
Service Name: C000
Availability: Online
Host: CESAM, Spatial Data Branch
Open Map
In October 1999, the US Army Engineer District, Mobile (SAM), initiated the USACE Northern Gulf of Mexico Regional Sediment Management Demonstration Program. The goal of the demonstration program is to change the paradigm of project specific management to focusing on a regional approach in which the USACE as well as state and local agencies stop managing projects and begin "managing the sand." The product of the RSM demonstration program is a Regional Sediment Management Plan consisting of a calibrated regional sediment budget, a calibrated numerical regional prediction system, and a regional data management and Geographic Information System. This GIS also fullfills a requirement of the Florida Department of Environmental Protection by providing baseline information required for re-certification of Gulf Intracoastal Waterway.
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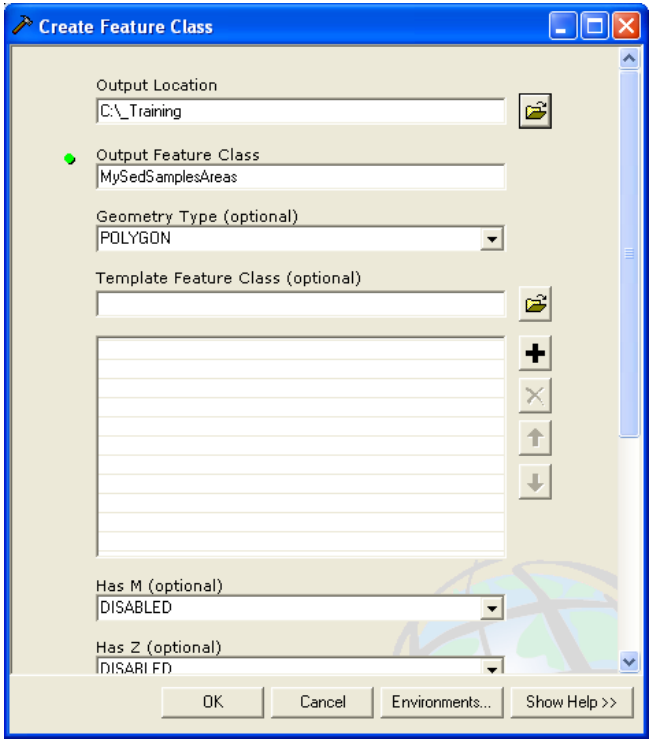
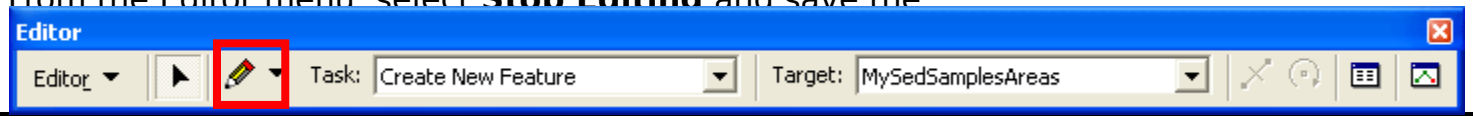
Exercise B: Creating and Loading Data into the Geodatabase

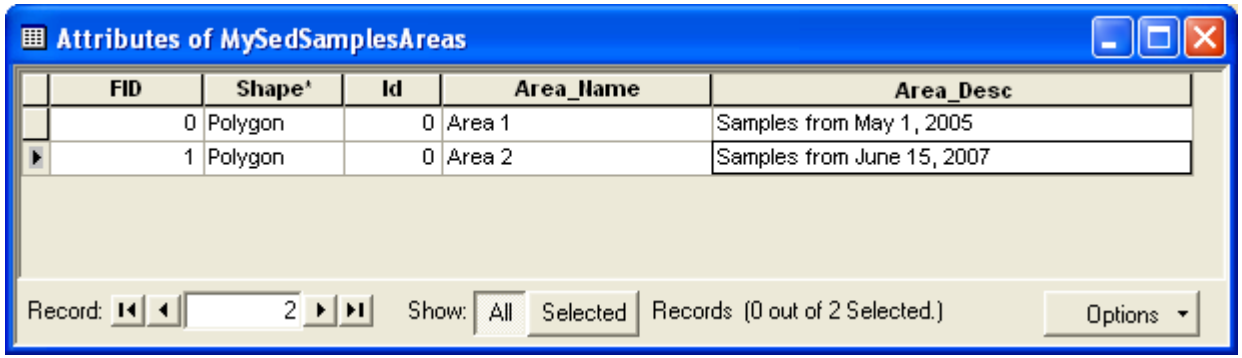
1. In this exercise we will create a new feature class using the ArcGIS software that represents sediment sample sites. We will then import this data into the newly created SDSFIE compliant feature class that supports sediment sampling sites.
   - ❑ In ArcMap, add in the Mobile Bay nautical chart into the mapping display. This chart is located in the Data folder in the Training directory.
   - ❑ Zoom into the east end of Dauphin Island.
2. Create a new POLYGON feature class using the *ArcToolbox*.
   - ❑ From Data Management Tools → Feature Class, double-click on Create Feature Class.
   - ❑ Create a new **POLYGON** Feature Class, named **MySedSamplesAreas**, and save in the Training directory on your local drive. The new polygon feature class will be added to the Table of Contents once the process is complete.
3. From the Editor menu, select **Start Editing**. Be sure the **MySedSamplesAreas** feature class is in the editing workspace.
   - ❑ Using the "Sketch" tool on the Editor toolbar, draw 2 polygons anywhere near the east end of Dauphin Island.
   - ❑ From the Editor menu, select **Stop Editing** and save the





Exercise B: Creating and Loading Data into the Geodatabase

1. Let's add 2 attributes to the feature class – Area_Name and Site_Desc. Right-click on the **MySedSamplesAreas** layer in the Table of Contents and open the attribute table.
   - ❑ Click on the "Options" button in the lower right corner, and select "Add Field."
   - ❑ Name the first field, Area_Name, and set the data type as "Text". Click OK.
   - ❑ Add another Text field named "Area_Desc". Click OK.
   - ❑ Start an Edit Session with the Editor Toolbar for the **MySedSamplesAreas** layer.
   - ❑ Edit the attributes (by double-clicking the respective field) to match the table below.
   - ❑ Stop the Edit Session and save the changes.



2. Open ArcCatalog and browse to the **eCoastal** database in the Training directory. Expand the **landform** feature dataset and right-click on the **sediment_sample_area** feature class.
   - ❑ Select **Load → Load Data**. Click "Next" at the home screen. On the following screen, select the newly created **MySedSamplesAreas** feature class as the **Input Data**.
   - ❑ Click the "Add" and "Next" button.
   - ❑ Click "Next" to load "Not to load all features into subtype."

Exercise B: Creating and Loading Data into the Geodatabase

- ❑ Click “Next”

3. The following screen will contain a matrix to ‘map’ the SDSFIE attributes to the field attributes created in the last task. Atrributes can be mapped by selecting the desired field in the pick in the column on the right.
   - ❑ Map “Area_Name” to “sampl_name”
   - ❑ Map “Area_Desc” to “sampl_desc”
   - ❑ Click “Next”
   - ❑ Choose the option to “Load all of the source data”
   - ❑ Click “Next”
   - ❑ Click “Finish”.
4. All geometry of the sediment sample areas have now been loaded into the geodatabase. All features are now SDSFIE compliant.

Exercise C: Using Layer Files to Display and Access Data

It takes time to analyze a feature class's attributes and symbolize its features so that people will readily understand the information within the data. After finalizing the symbolization and labeling of a layer, you can save it outside the map as a layer file. This allows a user to be able to load the data into ArcMap application and it have the same look and feel every time it is loaded.

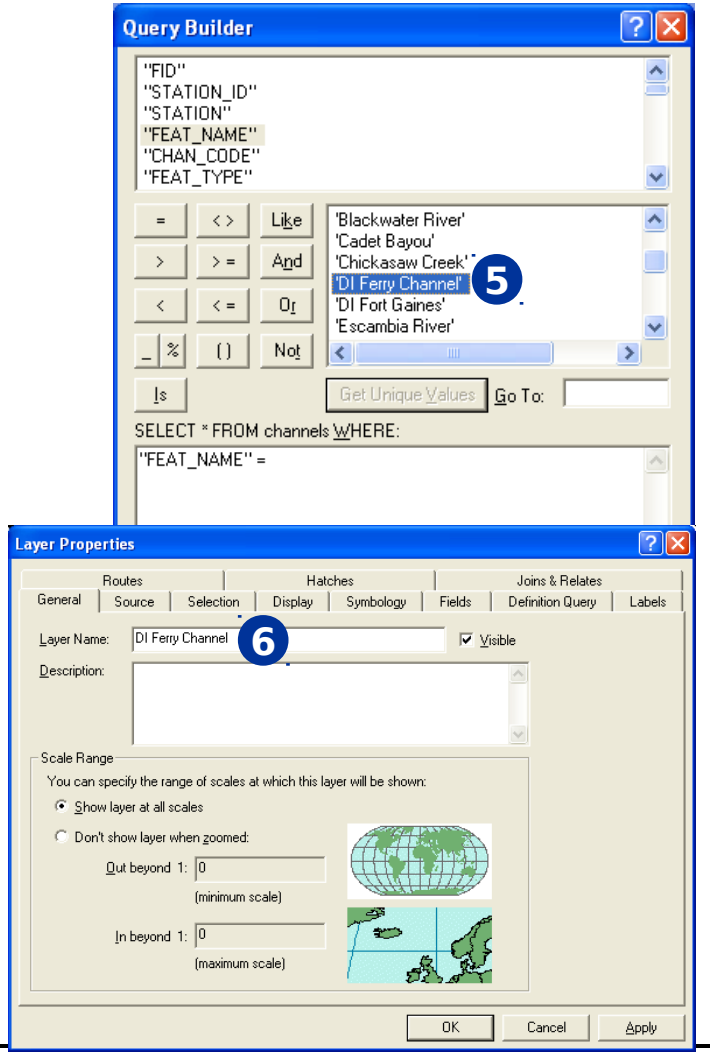
A GDB that is SDS compliant is unique in that several shapefiles can be loaded into one GDB Feature class. Building layer files allows a user the ability to extract particular sets of data out of a feature class. Layer files are, also, unique in that they can have metadata attached to them. This allows a user to have multiple surveys, for example, that are loaded into a single feature class, and each would have its own metadata file associated to its layer file.

When building a layer file from a Geodatabase, it is important to remember what user from which the layer files are being built. When logging into the eGIS GDB, use the appropriate user for the task. If edits need to be done on the GDB, log in as the editor, and build your layer file form this user. However, if you are simply viewing the data, log in as the viewer, and then built the layer file from the viewer.

Under the eCoastal data model, all data load into the eGIS GDB will have a layer file built for it. That layer file should have associated metadata and both should be stored in the appropriate project folder. All layer files should have the following properties built into them: a Definition Query, unique symbology, a common name, and scale dependent rendering set.

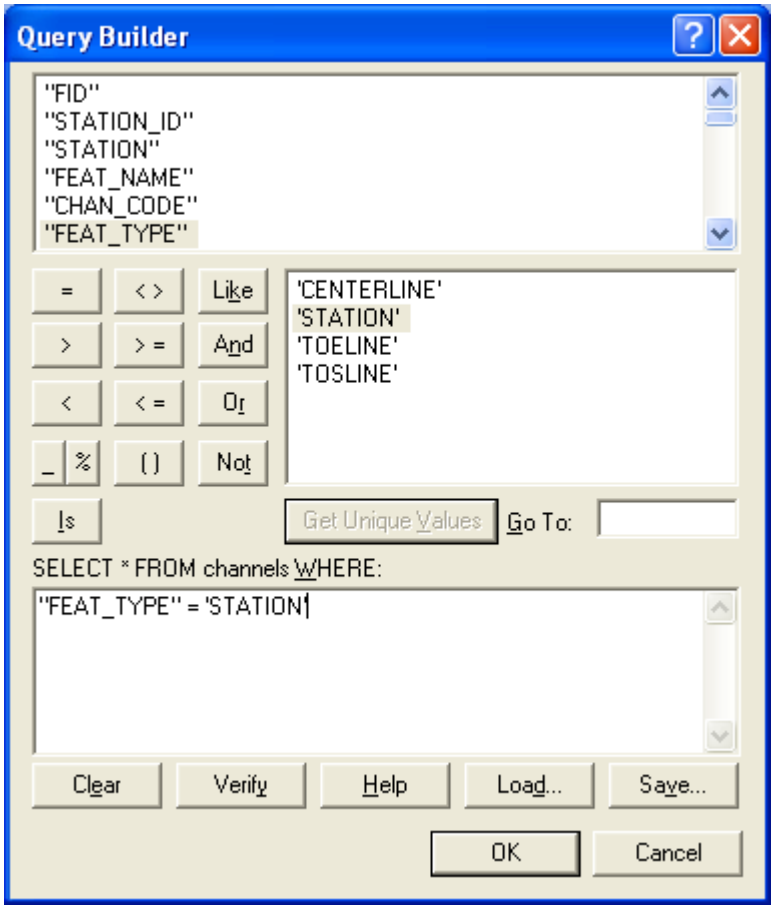
Exercise C: Using Layer Files to Display and Access Data

1. In ArcMap, add in the **navigation channels** feature class from the Training/Data directory from your local drive.
   - ❑ Right-click on the layer and select “Properties”
   - ❑ Click on the “**Definition Query**” tab. We will create a query to extract a portion of this layer, so it can be easily displayed in ArcMap.
2. Build the Query string for the layer.
   1. Click on the “Query Builder” button
   2. Double-click on “FEAT_NAME”. Notice it will appear at the bottom of your form.
   3. Click on the “=“ button.
   4. Click the “**Get Unique Values**” button.
   5. Scroll down to locate the “DI Ferry Channel”. Double-click on this record and click OK.
   6. On the “**General**” tab, rename the layer to “DI Ferry Channel”. Click OK on the Layer properties form.
   7. Notice that the channels layer is redrawn, but this time with only the DI Ferry Channel in view.
   8. Right-click on the DI Ferry Channel in the Tables of Contents and select “Save as Layer File”.
      - ❑ Browse to the Training directory and save this layer file.



Exercise C: Using Layer Files to Display and Access Data

1. In the Table of Contents, right-click on the DI Ferry Channel layer and select "**Copy**".
2. Right-Click on the Data Frame name in the Table of Contents and select "**Paste Layer**".
3. Right-Click on this duplicate layer and view it's **Properties**.
   - ❑ On the "**General**" tab, rename this layer to "Navigation Channel Stations".
   - ❑ Click on the "**Definition Query**" tab, and clear the existing query by selecting and deleting the contents.
4. Create a new definition query to filter for only the Station features.
   - ❑ Click on the Query Builder button
   - ❑ Create a new SQL query based on FEAT_TYPE.
   - ❑ Click OK twice.
   - ❑ Right-click on the new layer and save as a layer file.
5. Layer files can be used to filter large feature classes and provide a consistent symbology display. In these 2 examples, we created 2 different views of the same dataset. This technique can be used to assist in the leveraging of datasets across numerous projects, without having to recreate a copy of the spatial data.



Instructor Demo: Using Project Codes in Layer Files

Notes: